

WHAT IS CLAIMED IS:

[0074] 1. A method for generating a data compression dictionary in a DOCSIS network, comprising the steps of:

- i. identifying a plurality of frequently occurring data strings transmitted by at least one cable modem in the DOCSIS network;
- ii. assigning a token to represent each one of said plurality of frequently occurring data strings;
- iii. entering each one of the plurality of frequently occurring data strings and each token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce a data compression dictionary; and
- iv. transmitting the data compression dictionary to the at least one cable modem in the DOCSIS network.

[0075] 2. The method of claim 1, wherein the data compression dictionary is individually tuned for each one of a plurality of DOCSIS networks.

[0076] 3. A method for transmitting compressed data packets in a DOCSIS network using a data compression dictionary, comprising the steps of:

- i. receiving a plurality of data packets for transmission, wherein each of said data packets has a payload portion comprised of one or more data strings;
- ii. identifying which of said data packets has a payload portion that can be compressed;
- iii. for each of said data packets identified in said step (ii), replacing each of said one or more data strings contained in said payload portion with a token from said data compression dictionary assigned to represent said one or more data strings;
- iv. appending a compression indicator to each of said tokens

within each of said data packets; and

v. transmitting said data packets within a DOCSIS service identifier.

[0077] 4. The method of claim 3 wherein the token is a binary string.

[0078] 5. The method of claim 4 wherein the compression indicator indicates the length of the binary string.

[0079] 6. The method of claim 3 wherein said data compression dictionary is pre-defined and fixed.

[0080] 7. A method for expanding a PDU data string transmitted over a DOCSIS network, comprising the steps of:

i. receiving a plurality of data packets transmitted within a DOCSIS service identifier, wherein each of said data packets has a payload portion;

ii. identifying each of said plurality of data packets having a compression indicator appended to one or more tokens within said payload portion; and

iii. for each of said data packets identified in said step (ii), replacing each of said one or more tokens contained within said payload portion with a data string assigned to represent said one or more tokens found in a data compression dictionary.

[0081] 8. The method of claim 7, wherein the token is a binary string.

[0082] 9. The method of claim 8, wherein the compression indicator identifies the length of the binary string.